

New Hospital Programme

Digital Blueprint & Financial Model

29-Oct-2021

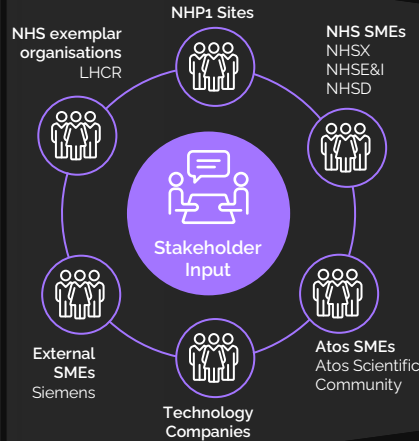


Methodology

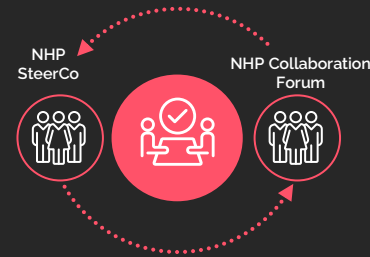
Gather best practice

-  Research existing GDE Blueprints
-  Research into International Exemplar Organisations
-  Horizon Scanning of new technology trends
-  Feedback from recent New Builds
-  SME input to develop real-life personas



Engage wide range of stakeholders



Iterative review with key parties

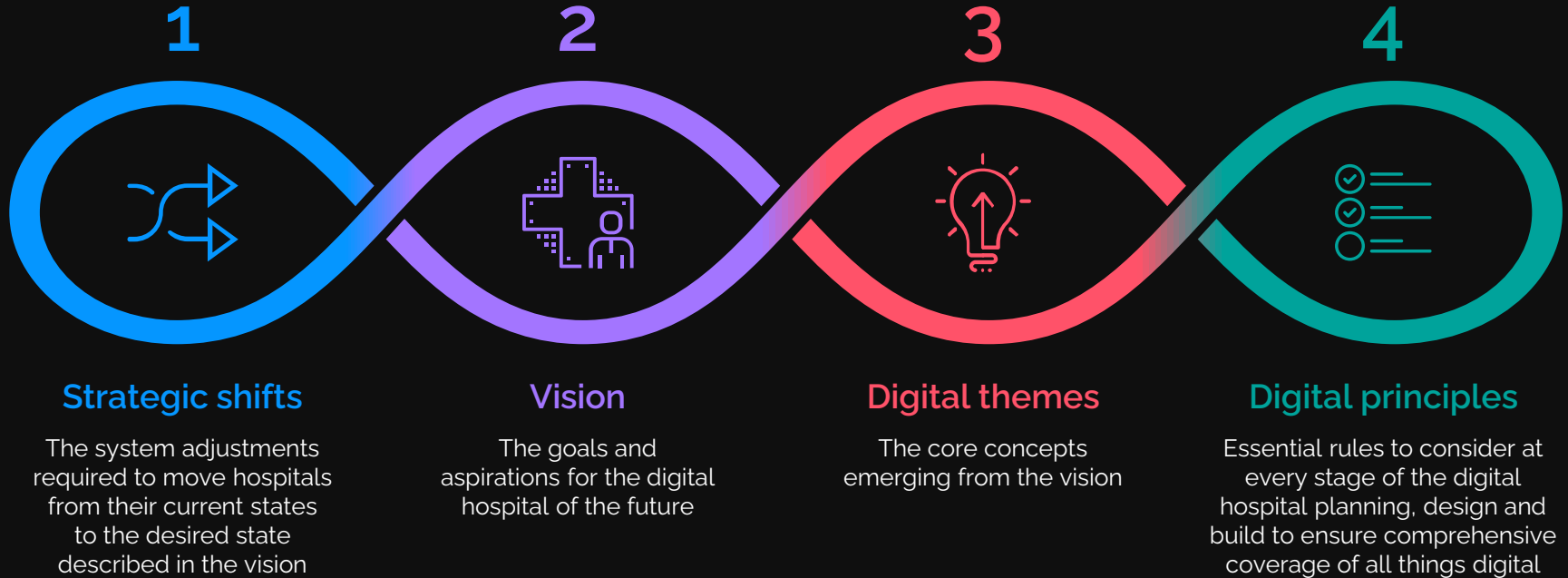


Publish

-  Vision of the hospital of the future including design principles
-  Guidance on technology and data that will help design the hospital of future
-  Examples of Personas and Journeys of the future workforce and patient, incl. some technologies they will use
-  Artefacts including research on best practices/exemplars to support next wave of NHP hospitals
-  Decision making aids in the form of checklists

Digital Hospital Framework

The framework for the digital hospital is organised using the components below in order to reduce the size and complexity of key factors for consideration:



The Atos NHSX Digital Capability Model

Business Capabilities - An abstraction of business functions

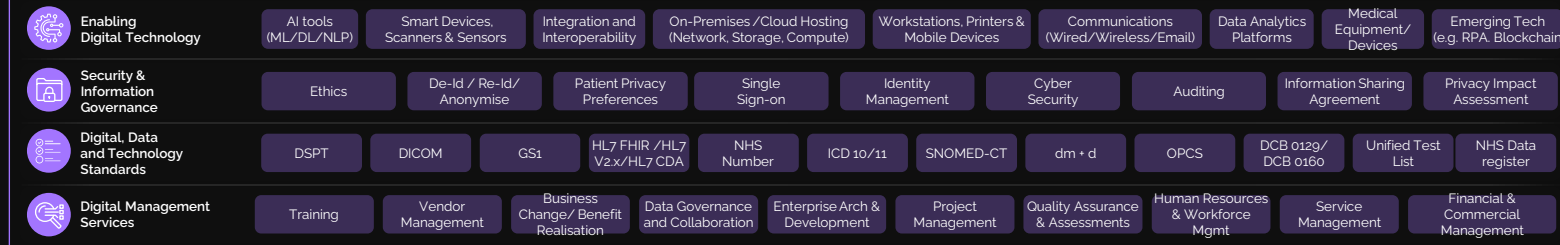


Foundation Capabilities

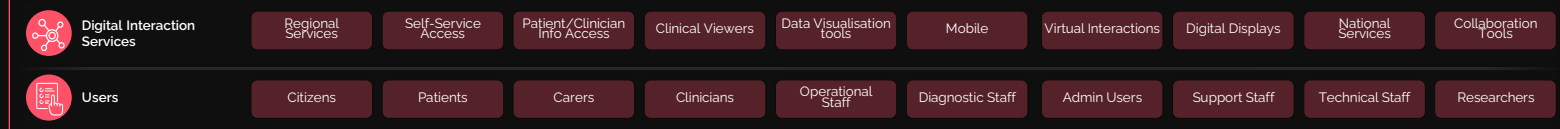
Transformational Capabilities

Innovative Capabilities

Dimensions - These support the capabilities



Engagement Channels - How staff and citizens engage with digital



Personas and Journey Maps

Visualisation of the user experience

NHP Personas

Future state patient and staff personas exemplify the user's future needs, experiences, behaviours and goals, which is valuable to **drive design decisions**. Building future personas **humanises** the different audiences that the NHP sites will influence, building empathy and engagement. Personas are valuable on their own, as they can be used to plan for future roles, including the future technology and data to consider. For this project, 3 patient personas have been created, and five staff personas.

Patients



Petya
Inpatient

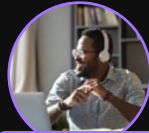


Greg
Outpatient



Lina
Petya's Family Carer

NHS Staff



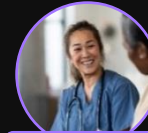
Chris
Operations Manager



Nadia
Estates Manager



James
Staff porter



Cassie
Geriatric Doctor



Claire
Day Case Surgery Unit Nurse

NHP Journey Maps

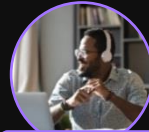
Whilst personas are valuable on their own, it is useful to take them one step further and create a persona journey map. A persona journey map is where a persona's end to end experience with the trust is stepped out and the different technology and data involved in the journey is identified. This is a valuable step in creating a **positive patient and staff experience**, as it allows the identification of steps and interactions that the patients will have with the future hospital. For this project, four persona journey maps have been created, including two patient and two staff.



Petya
Inpatient



Greg
Outpatient



Chris
Operations Manager



Cassie
Geriatric Doctor



Claire
Day Case Surgery Unit Nurse



Petya

Adult inpatient

FUTURE STATE - 2030

Digital confidence

25%

Communication method of choice



SMS Message



Email



Post

Key technologies used

- Voice assistance (Alexa)
- Assistive technology/screen reader for phone
- Smart pill dispenser
- COPD RPM technology
- Translated audiobooks
- Voice activated translation technology
- Video conferencing
- Virtual ward



Story

- Petya is visually impaired and suffers from COPD, due to smoking for almost 50 years. Petya has a family carer, Lina her daughter, however she is becoming increasingly independent due to the remote technology she now has.
- Unfortunately Petya has become unwell with a chest infection leading to sepsis, meaning she is now having to spend some time in hospital as inpatient whilst she is treated.
- Petya's English is limited, so she struggles when there is no Bulgarian translation.



Goals

- Be as independent as possible in the comfort of her own home
- Avoid being a burden on anyone
- Utilise technology and data to address any challenges due to her visual impairment
- Always stay connected to family



Challenges

- Finds some of the remote technology challenging to use when keep in touch with family and using remote monitoring
- Not fluent in English, so often struggles with language barrier
- Doesn't feel comfortable in hospitals as not used to surroundings, like she is at home due to her poor sight



Profile



Female



72



London



Retired



Eastern European



Day in the Life

Wakes up 9am and takes pills from automated dispenser

Uses voice assistant to put on lighting and heating to heat up the house

Call Lina using screen reader/assistive technology

Lina comes round for cup of coffee

Use RPM to check on oxygen and pulse rates and check out any COPD social group posts

Bed around 9pm - listen to Bulgarian audiobook

Relax watching some TV

Petya – Adult Inpatient

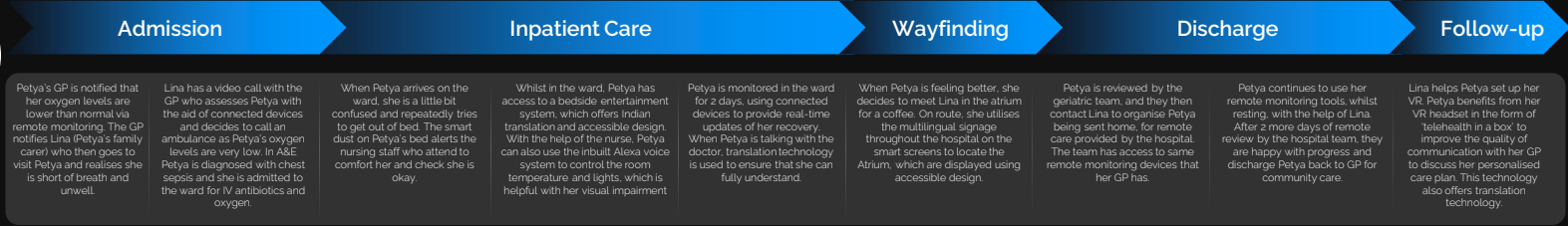
FUTURE STATE - 2030

Stages



Steps

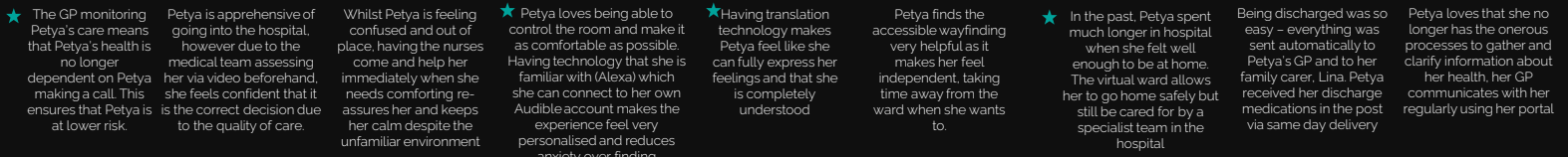
The steps that the user takes in their journey, interacting with different services and technologies along the way



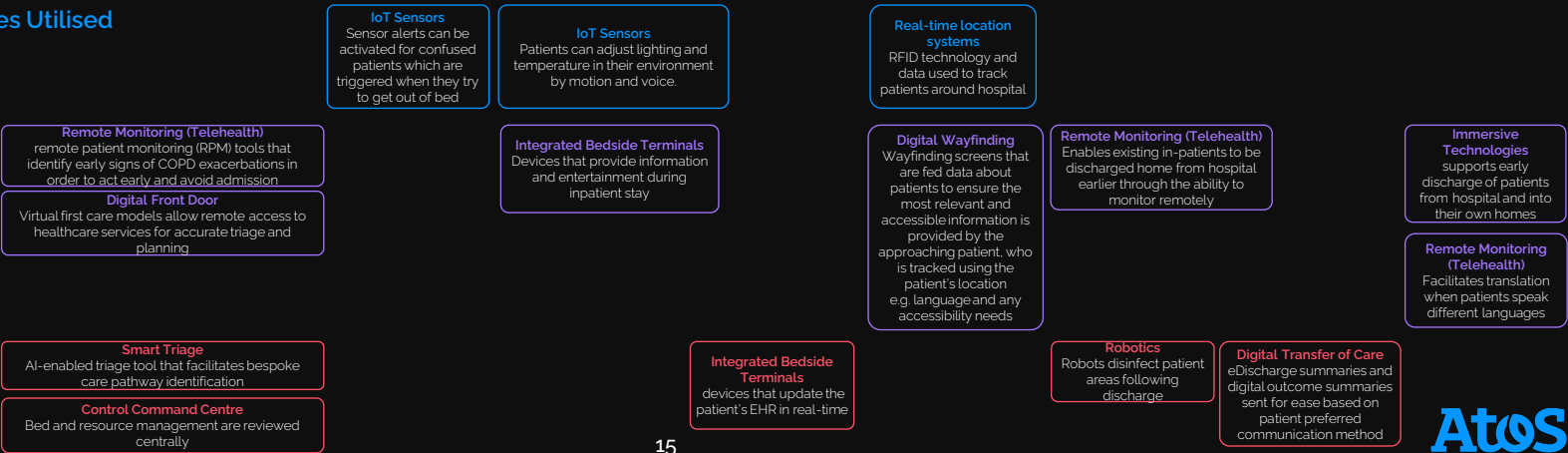
Patient Benefits

Patient benefits that will close the experience gap between the current state and future state of the patient journey

★ Moment of truth, where the user's previous challenges are addressed and solutionised



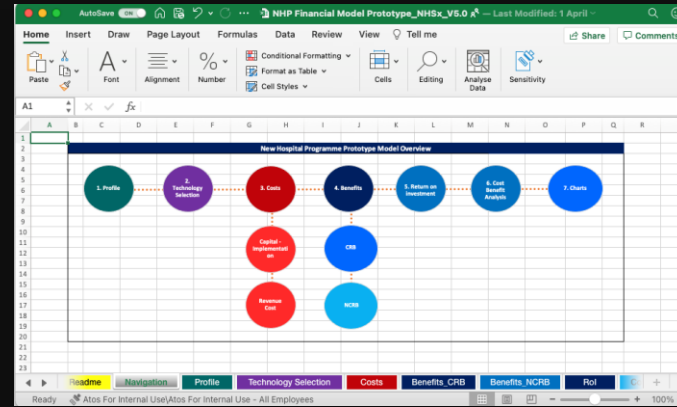
Digital Technologies Utilised



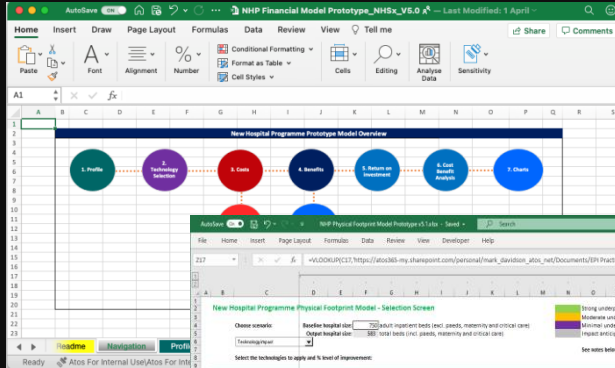
Phase 2

Delivered across 3 workstreams:

- A **financial model** to support development of business cases
- A practical **“how to” guide** to support development of the digital transformation journey using the blueprint
- A **supplier briefing pack** proposing a market engagement framework to support digital procurement



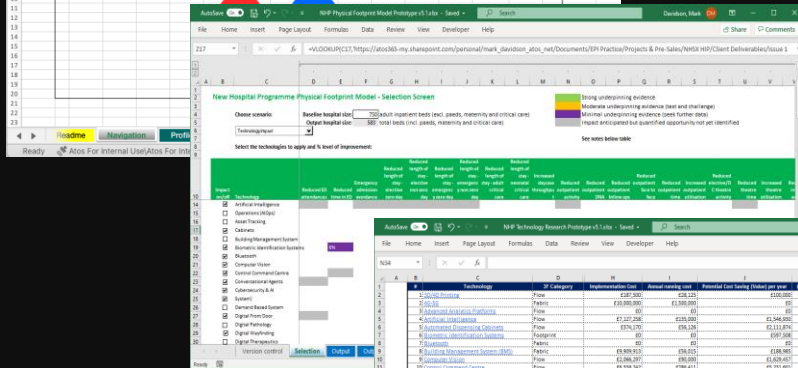
Financial Model



1

Financial Workbook

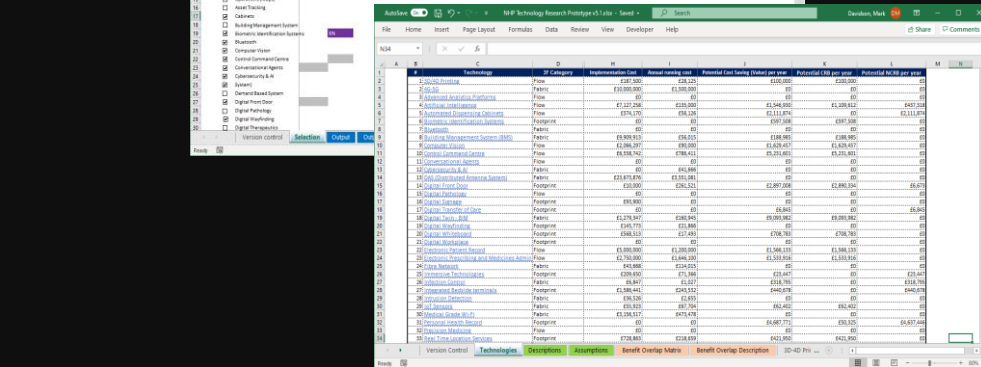
Allows creation of roadmap of costs and benefits for a selected set of technologies using data from the other two workbooks



2

Physical Footprint Model

Calculates potential space saving by applying digital technology to a new build

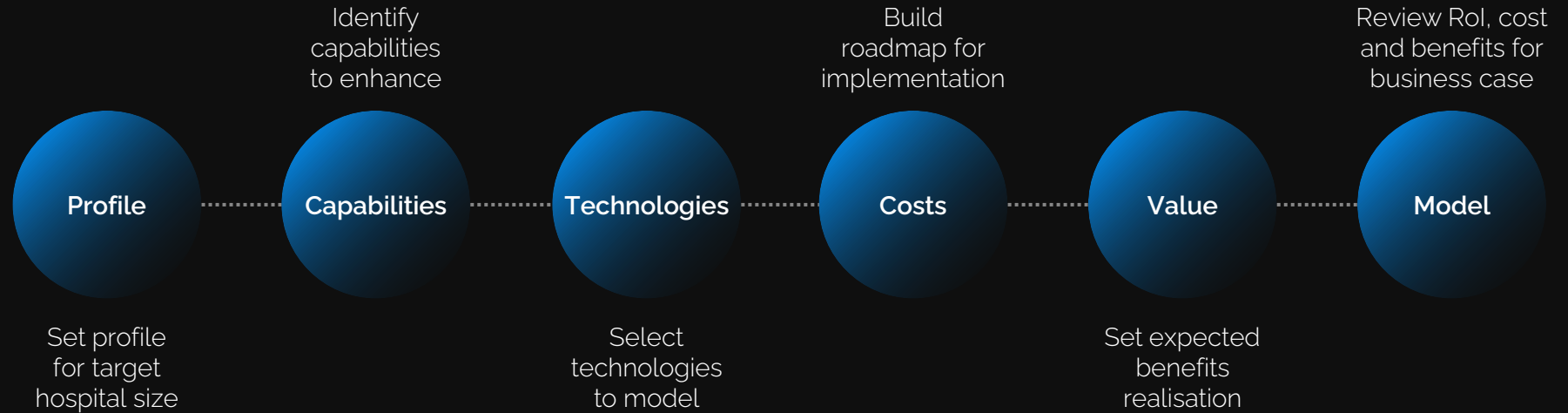


3

Technology Research

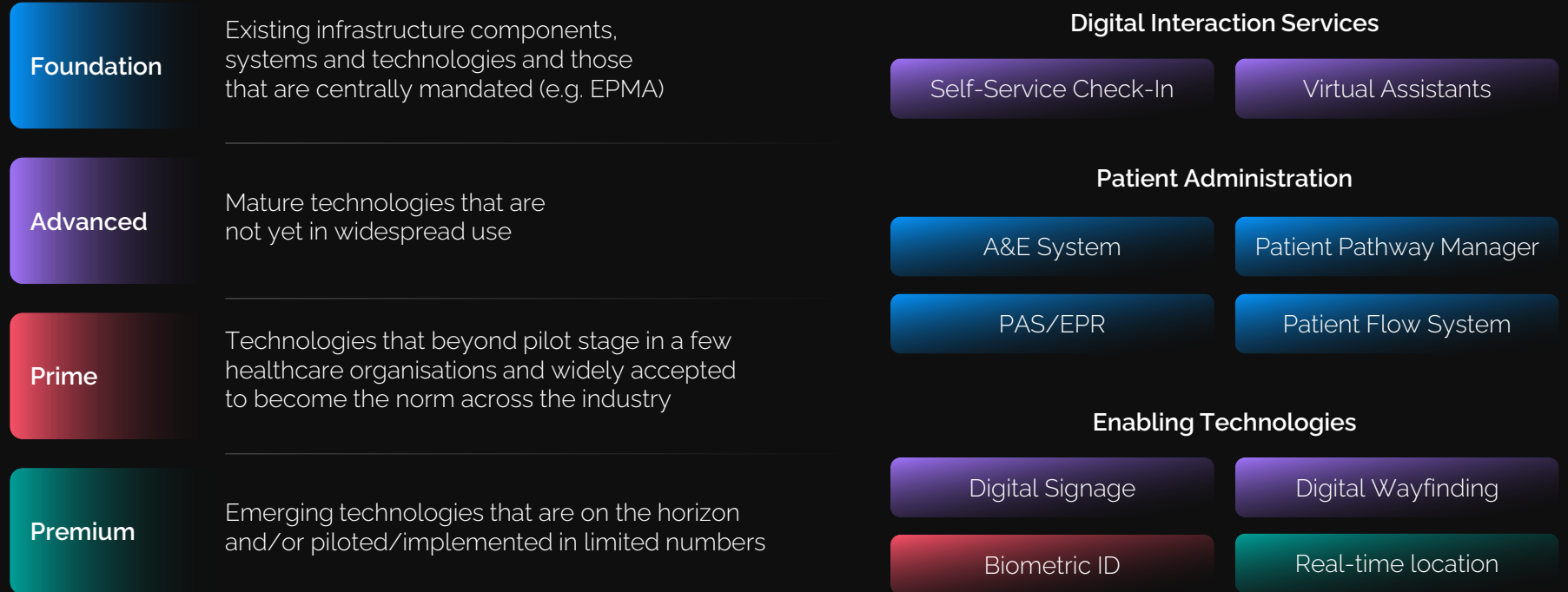
Desk-based and SME research of digital technology use cases, costs and benefits

Financial Workbook



Digital Technology maturity classification

With systems and technologies mapped to capabilities they are categorised to provide additional guidance on priority for selection.



Physical Footprint Model

Apply % improvements to the following factors based on research

Emergency Department

Reduced Attendances, Reduced Time, Admission Avoidance

Reduced Length of Stay

Increased day-case throughput

Outpatients

Reduced activity, DNAs, follow-ups, face-to-face, time
Increased utilisation

Theatres

Reduced elective activity, reduced time, increased utilisation

Imaging

Reduced activity, reduced time, increased utilisation



Digital technologies, costs and benefits

Value Category	Value Category Description
Physical footprint reduction	Space required by a service is reduced by certain amount
FTE	Better workforce utilisation resulting in better human interaction time
Patient throughput	More patient services provided in a set amount of time
Materials	Reduction in the materials usage
Efficiency	Reduction in time spent on non-value adding tasks (DNA, Admin tasks etc.)
Patient Experience	Added value to the patient experience
Green Factor	Reduction in waste and/or wider environmental benefits
Safety	Improvement in all safety aspects



Establish costs

- Identify system and technology implementation costs for new technologies
- Determine implementation strategy and costs for legacy systems (see below)



Determine value

- Research and identify benefits of implementing each technology



Model cost and value

- Define costs for each year of technology implementation
- Determine benefits profile quantifying year on year return



Procurement

- Identify appropriate procurement routes
- Determine cost effectiveness of central vs. local procurement

Strategy	Strategy description	Cost Impact
Coordination	Modification of the existing system for integration to new operation will incur a cost	20%
Unification	Utilisation of the existing systems from previous operations incurs minimal cost of implementation	5%
Diversification	Implementation of new technology component within the existing operation will incur a cost	35%
Replication	Discrete implementation of an existing system for NHP site	100%

Technology Research

Telemedicine example	Data
Cost of outpatient appointment <link>	£120
NHS guidelines for outpatient appointment duration (mins) <link>	20
Minutes saved per virtual appointment <link>	2.5
Percentage time savings per virtual appointment	13%
Cost savings per virtual appt (13% of £120)	£15
NHP site expected outpatient appointments	500,000
Assumption: % of all outpatient appts to virtualise	30%
NHP site number of virtual outpatient appts (30% of 500,000)	150,000
Potential savings from virtual outpatient appointments (150,000x£15)	£2,250,000

Technology research summary

Each technology of the future “Digital Hospital” is researched and evaluated, capturing costs and calculating value year-on-year.

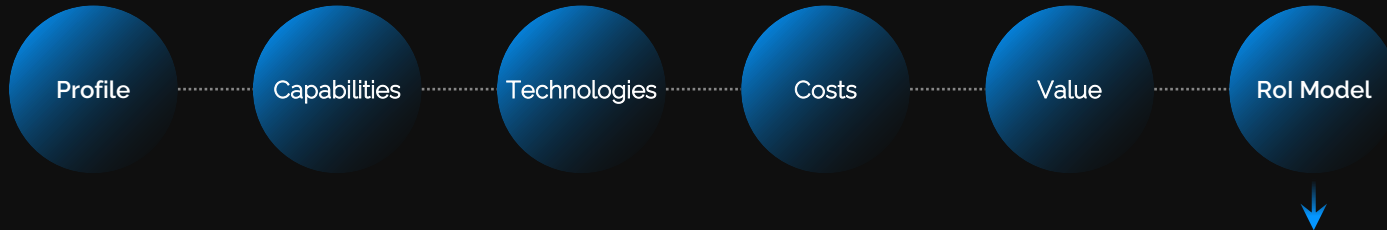
Digital Front Door

Capability	3F Linkage	Foundation Advanced Prime Premium	Prerequisite Technology Components	Value Statement	Value Category	Implementatio n Cost	Annual Run Cost	Annual Savings
Patient Administration	Footprint	Advanced	Network Infrastructure, Wireless Infrastructure, 4G/5G Infrastructure	-	-	£400,000	£200,000	£2,130,000
				Reduction of calls for booking services	FTE	£200,000	£100,000	£1,020,000
				Reduction of DNA as a result of patient self-bookings	Efficiency	£150,000	£80,000	£830,000
				Paperless solution will reduce the amount of physical correspondence required	FTE	£50,000	£20,000	£280,000

Figures for illustrative purposes only

Digital Technology business case input

The NHP Digital Blueprint builds on the capability and technology assessment of Phase 1 and creates a generic financial model which may be used and tailored by NHP sites to feed into their business case.



Implementation Methodology

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Fibre Network	£34k	£10k	£114k	£114k	£114k	£114k	£114k	£114k	£114k	£114k
Wi-Fi		£2,052k	£1,105k	£473k	£473k	£473k	£473k	£473k	£473k	£473k
Digital Front Door			£10k	£262k	-£172k	-£606k	-£1,184k	-£1,762k	-£2,195k	-£2,629k
Control Command Centre		£2,296k	£2,951k	£1,312k	£786k	£2k	-£783k	-£1,829k	-£2,876k	£3,660k
Telemedicine								£155k	£94k	-£298k
Real-time location service	£474k	£255k	£155k	£92k	£8k	-£77k	-£140k	-£203k	-£203k	-£203k

Figures for illustrative purposes only

Key ■ Implementation Costs ■ Run Costs (-£savings)

Thank you!

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